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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/954,969	09/17/2001	William E. Glenn	FAU-7039/40	8770

7590 10/06/2004

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EXAMINER	
HANNETT, JAMES M	

ART UNIT	PAPER NUMBER
2612	

DATE MAILED: 10/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/954,969	GLENN ET AL.	
	Examiner	Art Unit	
	James M Hannett	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 September 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 September 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the drawings are hand drawn. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: A color video camera that includes a regular CCD for a color channel and a back-thinned CCD for a luminance channel.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1: Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,523,785 Muramoto in view of USPN 6,605,820 Isoda et al in view of USPN 5,014,123 Imoto in view of USPN 6,078,681 Silver in further view of USPN 6,295,087 Nohda.

2: As for Claim 1, Muramoto teaches on Column 8, Lines 5-49 and depicts in Figure 8 an electronic video camera technique for film origination, including the following features: use of a regular CCD for the color channel (204) and a CCD for the luminance channel (203); Muramoto teaches reconstructing full resolution R, G, B from full resolution white and the red and Blue patterned image sensor (209); Muramoto teaches that the color image sensor can be a red and blue pattern image sensor. Muramoto does not teach that the luminance sensor can be a back-thinned image sensor and that the color CCD can be a Red and Green checkerboard pattern color image sensor.

Isoda et al teaches on Column 22, Lines 42-54 that it is advantageous to use a back-thinned CCD image sensor for a luminance sensor because it has superior characteristics to a regular image sensor.

Therefore, it would have been obvious to use a back-thinned CCD as taught by Isoda et al for the luminance sensor of Muramoto because it has superior characteristics to a regular image sensor.

Muramoto teaches on Column 8, Lines 5-49 and depicts in Figure 8 the use of a red and blue color image sensor (204) and a luminance sensor (203). Muramoto teaches the method of deriving RGB color signal from the Red, Blue, and white image data (209). Muramoto does not teach that the color pixels on the image sensor can be a checkerboard pattern or that the color pixels can be replaced with Red and Green.

Official notice is taken that it was well known in the art at the time the invention was made to arrange pixels in a multi-color image sensor in a checkerboard format in order to improve image quality.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange the color filters on the color CCD of Muramoto in a checkerboard pattern in order to improve image quality.

Furthermore, Official notice is taken that it was well known in the art at the time the invention was made to derive RGB color data from luminance data, Red image data, and Green image data in order to improve image quality.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the Blue pixel in the CCD of Muramoto with Green pixels in order to derive RGB color data from luminance data, Red image data, and Green image data in order to improve image quality.

Muramoto in view of Isoda et al does not teach a technique for deriving an automatic gain control (AGC) signal using an unshielded white area on the CCD to obtain a white reference.

Imoto teaches on Column 37, lines 43-60 that it is advantageous to design imaging systems to perform an AGC function that utilizes a white-reference value from the pixels of the image sensor in order to improve image quality.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the AGC method of Imoto in the digital image scanner of Muramoto in view of Isoda et al in order to improve image quality.

Muramoto in view of Isoda et al in view of Imoto does not teach that the image data can be stored in a RAID recorder

Silver teaches on Column 1, Lines 51-57 and Column 13, Lines 37-42 a technique for using a RAID memory disk array to store variable frame rate image data. Silver teaches that it is advantageous to store the image data on a RAID memory disk array because it eliminates the need for a video tape recording device.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a RAID memory disk array to store the variable frame rate image data as taught by Silver in the camera of Muramoto in view of Isoda et al in view of Imoto in order to eliminate the need for a video tape recording device.

Muramoto in view of Isoda et al in view of Imoto in further view of Silver teaches does not teach the use of diagonal binning (diagonal interpolation) of the signals from a color checkerboard pattern;

Nohda teaches on Column 15, lines 34-48 that it is advantageous to allow a digital camera to perform interpolation between the respective color signals fetched in a vertical, horizontal, or diagonal direction which has the greatest correlation (same color), thus enabling to improve the resolution and improve image quality.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to allow the camera of Muramoto in view of Isoda et al in view of Imoto in further view of Silver to perform diagonal interpolation between the respective color signals to improve the resolution and improve image quality.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USPN 6,614,471 Ott teaches the use of a digital camera that uses both a luminance

sensor and a color sensor; USPN 3,603,723 Tan teaches the use of a camera that uses multiple image sensors; USPN 6,356,379 Kreymerman teaches the use of a camera that uses both a luminance image sensor and a color stripe patterned image sensor; USPN 6,529,640 Utagawa et al teaches the use of a camera that uses two image sensors and performs interpolation on the pixel data; USPN 5,379,069 Tani See Figure 1; USPN 4,876,591 Muramatsu see Figure 1; USPN 5,673,124 Kaji et al; USPN 4,274,107 Tamura et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M Hannett whose telephone number is 703-305-7880. The examiner can normally be reached on 8:00 am to 5:00 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on 703-305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James M. Hannett
Examiner
Art Unit 2612

JMH
September 16, 2004

WENDY R. GARBER
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